

**REMARKS**

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons which follow. Claims 5-21 remain pending and are submitted for reconsideration.

Claims 5-21 are rejected under 35 U.S.C. § 112, second paragraph as indefinite. Amendments to the claims have been made where appropriate. For example, "slime-like" has been replaced by the term "fluid mixture." Reconsideration and withdrawal of the rejections is respectfully requested.

Prior Art Rejections

The Office Action contains eight different prior art rejections. For the Examiner's convenience, Applicants address these rejections and the patentability of the three groups of claims (based on the independent claims 5, 14 and 19) in turn below.

Claim 5-13

Claim 5 is rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,279,943 (Wallace). The rejection should be withdrawn because Wallace fails to disclose, teach or suggest the claimed invention. For example, Wallace fails to disclose "an inlet section disposed above a contact portion between said pair of feed rollers so as to store a coating material comprising a fluid mixture containing flux" as called for in claim 5. The Examiner contends that such an inlet section is shown in Fig. 4 of Wallace. However, Fig. 4 of Wallace is directed to the clearing rolls 42 not the feed rollers 14, 48 identified by the Examiner. The clearing rolls 42 include an outer layer 44 of sponge like material containing a coating to be applied to threaded region of the nuts N being processed. The clearing rolls 42 are not positioned in opposing fashion and are not feed rollers as called for in claim 5.

Further by way of example, Wallace fails to disclose "a dam member disposed along and in sliding contact with end faces of the pair of feed rollers" as called for in claim 5. The Examiner contends that the horizontal support 16 disclosed by Wallace meets the claimed "dam member." Wallace discloses that the flat horizontal support 16 is used in conjunction with a filling station 10. The nuts N being treated pass through

the filling station 10 prior to reaching the rollers 14, 48. Thus, there is no disclosure that the horizontal support is in "sliding contact with end faces of the feed rollers." Furthermore, the horizontal support 16 includes an opening 18 through which a fluid slurry is pumped to fill the interior of the nuts N. Thus, the horizontal support 16 is not "a dam member" as called for in claim 5, but instead allows fluid to pass through like a sieve.

Still further by way of example, Wallace fails to disclose, teach or suggest an "endless coating belt coated with the coating material [that] comes into contact with an introduced component" as called for in claim 5. The Examiner points to two belts 12, 60 as meeting the "endless coating belt" language of claim 5. However, Wallace fails to disclose that these two belts 12, 60 are coated with a coating material. In fact, Wallace teaches that the coating material should be located on the clearing rolls 42 and not the feed belt 60. The other feed belt 12 is provided for driving the nuts N prior to the nuts entering the coating process. Thus, Wallace fails to disclose an endless coating belt as called for in claim 5.

Therefore, for at least the reasons set forth above, Wallace cannot anticipate claim 5. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 9 is rejected under 35 U.S.C. § 102(b) as anticipated by Wallace. Claim 9 depends from claim 5. Thus, the rejection should be withdrawn for at least the reasons set forth above with regard to claim 5 without regard to the further patentable limitations contained in claim 9.

Claims 7 and 10-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wallace in view of U.S. Patent No. 4,496,415 (Sprengling). The rejection should be withdrawn because the claimed invention is not disclosed, taught or suggested by the cited references (either when taken alone or in combination). Claims 7 and 10-13 depend from claim 5. Thus, the rejection of these claims should be withdrawn for at least the reasons set forth above with regard to claim 5 without regard to the further patentable limitations contained in these dependent claims. These patentable limitations include, for example, the tapered pressure plates of claims 11 and 12 which are not disclosed in the cited references.



Sprengling fails to cure the numerous deficiencies of Wallace, examples of which are set forth above, therefore the combination of the references cannot render the claimed invention obvious. Furthermore, no *prima facie* case of obviousness has been made because the Examiner has failed to point to any teaching in the prior art that would suggest modifying Wallace in the manner set forth in the Office Action. The Examiner contends that it would have been obvious "to employ a pair of plates (54) for adjustable, controlled application of pressure between the parts (nuts) and belt ... in a simple and cost-effective manner (Wallace, col. 1, lines 25-30)." (Office Action at p. 7). The portion of Wallace identified by the Examiner is not directed to the cost benefits of using a pair of plates. Instead, the cited text (Wallace at col. 1, lines 25-30) is directed to the disadvantages of using a dry resin powder on the threads of a nut. Thus, there is no motivation for modifying the system disclosed by Wallace and no *prima facie* case of obviousness has been made. Accordingly, the rejection should be withdrawn.

Claims 5-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,372,493 (Rodgers) in view of U.S. Patent No. 5,651,142 (Williams).

Applicants direct the Examiner's attention to the fact that both Rodgers and Williams are directed to apparatus for casting and not to an apparatus for coating materials. Thus, as non-analogous art, these references cannot render the claimed invention obvious. Furthermore, the rejection should be withdrawn because the claimed invention is not disclosed, taught or suggested by the cited references (either when taken alone or in combination). For example, Rodgers fails to disclose "an inlet section disposed above a contact portion between said pair of feed rollers" as called for in claim 5. The Examiner points to rollers 56, 62 as forming an inlet section for storing flux. However, "the inlet section" identified by the Examiner is not "disposed above a contact portion between said pair of feed rollers." In Rodgers, the flux 10 passes between the rollers 56, 62 and is not "stored" above a contact portion between the rollers as called for in claim 5. Furthermore, the rollers 56, 62 are positioned where the cast material exits from the belt 4 and, therefore, cannot create an "inlet section" as called for in claim 5. At the inlet end of the apparatus disclosed by Rodgers, the rollers 58, 64 are separated and cannot be in contact as called for in claim 5. Further by way of example, Rodgers fails to disclose a feed roller in contact with an endless coating belt

to transfer coating material to a surface of the belt as called for in claim 5. The rollers 56, 62 disclosed by Rodgers are located inside the belts 2, 4 and do not come in contact with the resin 10 (which is not a coating material). As a result, the rollers cannot transfer a coating material to a surface of the belt. Still further by way of example, the rollers 56, 62 disclosed by Rodgers are separated by the belts 2, 4 and are not "in contact with each other" as called for in claim 5. Williams does not cure the deficiencies of Rodgers set forth above.

Furthermore, the rejection based on the combination of Rodgers and Williams should be withdrawn because a *prima facie* case of obviousness has not been made. The Examiner contends that it would have been obvious to modify Rodgers to include dams in contact and on opposed ends of the rollers to control fluid flow and the size and width of the coating. In support of this position, the Examiner cites to a teaching of Rodgers (col. 3, lines 57-63). The teaching identified by the Examiner actually teaches away from modifying Rodgers to include the dams disclosed in Williams. The teaching relied upon by the Examiner explains the benefit of using the dams 32 disclosed in Rodgers. These dams 32 are positioned on the belt and do not contact the end faces of the rollers 56, 62. Thus, when relying on the teaching of Rodgers one of ordinary skill in the art would have no reason to and would not seek to employ the dams 42 disclosed by Williams. Thus, as insufficient motivation for modifying the reference has been provided, there is no *prima facie* case of obviousness and the rejection must be withdrawn. Furthermore, one of ordinary skill in the art would recognize that dams 42 disclosed in Williams are designed for an apparatus that operates without a belt. These dams 42 would serve no purpose and are unnecessary in the Rodgers device where the material being cast is deposited onto a belt by a dispenser unit 8.

For at least the reasons set forth above, reconsideration and withdrawal of the rejection of claim 5 is respectfully requested. Claims 6-8 depend from claim 5 and are allowable therewith for at least the reasons set forth above without regard to the further patentable limitations contained therein.



Claims 14-18

Claims 14-17 are rejected under 35 U.S.C. § 102(b) as anticipated by Sprengling. The rejection should be withdrawn because Sprengling fails to disclose, teach or suggest the claimed invention. For example, Sprengling fails to disclose a pair of endless coating belts that contact the top peaks of an aluminum corrugated fin for a heat exchanger as called for in claim 14. Sprengling discloses steel belts 25 that are not "coating" belts. Sprengling discloses that a dry (not a "fluid mixture") resin powder is applied to a fibrous sheet (not "an aluminum corrugated fin") before the sheet comes in contact with the steel belts 25. Thus, unlike the claimed invention the steel belts are not "applying a coating material comprising a fluid mixture containing flux to the top peaks" of the aluminum fin as called for in claim 14. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 18 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sprengling in view of Wallace. As with the § 103 rejections addressed above, the rejection of claim 18 should be withdrawn because no *prima facie* case of obviousness has been made. One of ordinary skill in the art would not substitute rubber belts for the steel belts of Sprengling, because rubber belts would not be desired in the 250° F temperatures disclosed by Sprengling (col. 5, line 20). Withdrawal of the rejection is respectfully requested.

Claims 14-17 are rejected under 35 U.S.C. § 102(b) as anticipated by Rodgers. The rejection should be withdrawn because Rodgers fails to disclose, teach or suggest the claimed invention. For example, Rodgers fails to disclose a pair of endless coating belts that contact the top peaks of an aluminum corrugated fin for a heat exchanger. Rodgers discloses belts 2, 4 that are not "coating" belts. Rodgers discloses an apparatus for casting a thermoset resin between the two belts 2, 4. The belts in Rodgers are used to form the resin into sheets. Thus, unlike the claimed invention the belts disclosed by Rodgers are not "applying a coating material comprising a fluid mixture containing flux to the top peaks" of the aluminum fin as called for in claim 14. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 15-18 depend from claim 14 and are allowable therewith, for at least the reasons set forth above, without regard to the further patentable limitations contained therein.

Claims 19-21

Claims 19-21 are rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,560,425 (Sugawara) and U.S. Patent No. 5,295,302 (Takai). For example, neither reference discloses the step of "applying a coating material comprising a fluid mixture containing flux *exclusively* to top peaks of corrugated fins" as called for in claim 19. Both Takai and Sugawara disclose a coating process for the entire fin. (Takai at col. 6, line 65 and Sugawara at col. 7, lines 48-49). Claim 19 is directed to coating only the top peaks of the corrugated fins. Thus, neither Takai or Sugawara anticipate the claimed invention. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 20 and 21 depend from claim 19 and are allowable therewith, for at least the reasons set forth above, without regard to the further patentable limitations contained therein.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date

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By



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5. (Amended) A flux coating apparatus comprising:

a pair of feed rollers to be rotated in opposite directions while remaining in contact with each other;

an inlet section disposed above a contact portion between said pair of feed rollers so as to store [slime-like] a coating material comprising a fluid mixture containing flux;

a dam member disposed along and in sliding contact with end faces of the pair of feed rollers so as to prevent the coating material from flowing laterally from said inlet section; and

a pair of endless coating belts which are spaced at a required interval so as to be mutually opposed and rotated in opposite directions, wherein at least one of said pair of feed rollers is in contact with at least one of said pair of endless coating belts, thereby transferring the coating material to a surface of said endless coating belt, and wherein the surface of the endless coating belt coated with the coating material comes into contact with an introduced component to be coated with the coating material, to thereby coat a surface of the component with the coating material during a course of feeding of the component in a single direction.

14. (Amended) A flux coating apparatus comprising:

a pair of endless coating belts which are vertically spaced at a predetermined interval so as to be mutually opposed and rotated in opposite directions, said endless coating belts being brought into contact with top peaks of [a] an aluminum corrugated fin for a heat exchanger [component] to be introduced between a clearance between opposing portions of said endless coating belts, and applying [slime-like] a coating material comprising a fluid mixture containing flux to the top peaks during a course of feeding the corrugated fin [component] in a single direction; and

a pair of pressure plates for pressing the opposing portions of said endless coating belts against the top peaks of the corrugated component.

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15. (Amended) A flux coating apparatus according to claim 14, wherein a clearance between the pair of presser plates in a vicinity of a [component] fin inlet side is set greater than a height of the corrugated component.
16. (Amended) A flux coating apparatus according to claim 15, wherein end portions at the [component] fin inlet side of respective presser plates are tapered outward.
18. (Amended) A flux coating apparatus according to claim 14, wherein said endless coating belt comprises elastic material so that the surface of the endless coating belt is elastically brought into contact with the top peaks of the corrugated fin [component].
19. (Amended) A method for manufacturing a heat exchanger, comprising the steps of:
- applying [slime-like] a coating material comprising a fluid mixture containing flux exclusively to top peaks of corrugated fins;
  - stacking a plurality of said corrugated fins and a plurality of flat tubes in an alternating manner to thereby constitute a core;
  - inserting ends of said flat tubes of the core into tube insertion holes of header tanks; and
  - heating the core, thereby brazing together the top peaks of the corrugated fins and the flat tubes.
20. (Amended) A method for manufacturing a heat exchanger according to claim 19, further comprising a step of applying the [slime-like] coating material to one of peripheral edges of the tube insertion holes formed in the header tanks and the ends of the flat tubes before said heating, so that the peripheral edges of the tube insertion holes of the header tanks and the ends of the respective flat tubes are brazed a said heating step.
21. (Amended) A method for manufacturing a heat exchanger according to claim 19, wherein the [slime-like flux] coating material is applied to the top peaks of said corrugated fins as the fins pass between [the] a pair of endless coating belts [belt].